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EXAMINER	
KIM, CHONG R	
ART UNIT	**PAPER NUMBER**
2623	

DATE MAILED: 01/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/091,294	FUNAHASHI, TAKESHI	
	Examiner	Art Unit	
	Charles Kim	2623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-21 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-21 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 06 March 2002 is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 6/18/02.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. Figures 15-16 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Referring to claim 1, the phrase "image of the fingerprint" in line 20, and the phrase "image data of the fingerprint" in lines 21-22 render the claim indefinite because it is unclear which "fingerprint" (the fingerprint from the first region or the fingerprint from the second region) is being claimed. It appears that both recitations of "the fingerprint" are referring to the

fingerprint obtained from the second region of a human finger. Similar objections are applicable to claims 2, 11, and 12.

Referring to claim 14, the phrase "image of the biometric information" in line 8, and the phrase "image data of the biometric information" in lines 9-10 render the claim indefinite because it is unclear which "biometric information" (the biometric information from the first region or the biometric information from the second region) is being claimed. It appears that both recitations of "the biometric information" are referring to the biometric information obtained from the second region of a human body.

Claims not mentioned specifically are dependent from indefinite antecedent claims.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 5, 9-12, 14, 16, 20, 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Brumbley et al., U.S. Patent No. 5,982,913 ("Brumbley").

Referring to claim 1 as best understood, Brumbley discloses a fingerprint identification system comprising a registration apparatus and an identification apparatus,

the registration apparatus comprising:

a. a first fingerprint sensor for reading a fingerprint in a first region of a human finger to output an image signal representing an image of the fingerprint (col. 5, lines 8-23 and figure 2);

b. first image data generating means for generating image data of the fingerprint based on the image signal output from the first fingerprint sensor (col. 5, lines 8-23. Note that the image of the fingerprint is inherently generated by a first image data generating means);

c. data output means for outputting the image data generated by the first image data generating means (col. 6, lines 1-11. Note that the image data is outputted by an output means during the comparison process);

the identification apparatus comprising:

d. data input means for receiving the image data output from the data output means, storage means for storing the image data received by the data input means (col. 6, lines 1-11. Note that the image data is received by an input means and stored by a storage means during the comparison process);

e. a second fingerprint sensor for reading a fingerprint in a second region of a human finger, which is smaller than the first region, to output an image signal representing an image of the fingerprint (col. 5, lines 24-33 and figure 2);

f. second image data generating means for generating image data of the fingerprint based on the image signal output from the second fingerprint sensor (col. 5, lines 24-33. Note that the image of the fingerprint from the second region is inherently generated by a second image data generating means);

g. image identification means for comparing the image data generated by the second image data generating means against the image data stored in the storage means to determine whether the fingerprints represented by the respective image data coincide with each other (col. 6, line 1-col. 7, line 56. Note that the correlation/comparison process is inherently performed by an image identification means).

Referring to claim 2 as best understood, Brumbley discloses a fingerprint identification apparatus comprising:

a. storage means for storing image data representing an image of a fingerprint in a first region of a human finger (col. 5, lines 8-23 and col. 6, lines 1-11. Note that the image data is stored by a storage means during the comparison process)

b. a fingerprint sensor for reading a fingerprint in a second region of a human finger, which is smaller than the first region, to output an image signal representing an image of the fingerprint (col. 5, lines 24-33 and figure 2);

c. image data generating means for generating image data of the fingerprint based on the image signal output from the fingerprint sensor (col. 5, lines 24-33. Note that the image of the fingerprint from the second region is inherently generated by an image data generating means);

d. image identification means for comparing the image data generated by the image data generating means against the image data stored in the storage means to determine whether the fingerprints represented by the respective image data coincide with each other (col. 6, line 1-col. 7, line 56. Note that the correlation/comparison process is inherently performed by an image identification means).

Referring to claim 5, Brumbley further discloses that the image identification means compares the image data generated by the image data generating means against the image data stored in the storage means by pattern matching to determine whether the fingerprints represented by respective image data coincide with each other (col. 6, lines 1-18. Note that the correlation process is interpreted as "pattern matching").

Referring to claim 9, Brumbley further discloses that the fingerprint identification apparatus is incorporated in a portable item (col. 1, lines 40-47).

Referring to claim 10, Brumbley further discloses that the portable item comprises a smart card (col. 1, lines 40-47).

Referring to claim 11, see the rejection of at least claim 1 above.

Referring to claim 12, see the rejection of at least claim 2 above.

Referring to claim 14, see the rejection of at least claim 1 above.

Referring to claim 16, see the rejection of at least claim 5 above.

Referring to claim 20, see the rejection of at least claim 9 above.

Referring to claim 21, see the rejection of at least claim 10 above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Brumbley et al., U.S. Patent No. 5,982,913 ("Brumbley") and Machida et al., U.S. Patent No. 6,060,756 ("Machida").

Referring to claim 3, Brumbley does not explicitly disclose that the fingerprint sensor generates the image signal by detecting variation in capacitance due to ridges and valleys of the fingerprint when the finger is placed on a fingerprint reading unit. However, this feature was exceedingly well known in the art. For example, Machida discloses a fingerprint sensor that generates an image signal by detecting variation in capacitance due to ridges and valleys of a fingerprint when a finger is placed on a fingerprint reading unit (col. 1, lines 53-66).

Brumbley and Machida are combinable because they are both concerned with fingerprint imaging systems. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the fingerprint sensor of Brumbley so that it generates the image signal by detecting the variation in capacitance due to ridges and valleys of a fingerprint, as taught by Machida. The suggestion/motivation for doing so would have been to reduce the size of the structure, thereby enhancing the ergonomics of the fingerprint imaging system (Machida, col. 2, lines 2-4). Therefore, it would have been obvious to combine Brumbley with Machida to obtain the invention as specified in claim 3.

5. Claims 4, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Brumbley et al., U.S. Patent No. 5,982,913 ("Brumbley") and Driscoll Jr. et al., U.S. Patent No. 5,067,162 ("Driscoll").

Referring to claim 4, Brumbley does not explicitly disclose that the image data generating means generates image data representing a binary image of the fingerprint based on the image signal output from the fingerprint sensor. However, this feature was exceedingly well known in the art. For example, Driscoll discloses an image data generating means that generates image data representing a binary image of a fingerprint based on an image signal output from a fingerprint sensor (Driscoll, col. 4, lines 1-18).

Brumbley and Driscoll are combinable because they are both concerned with fingerprint imaging systems. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the image data generating means of Brumbley so that it generates image data representing a binary image of the fingerprint, as taught by Driscoll. The suggestion/motivation for doing so would have been to enhance the computational speed of the imaging process (Driscoll, col. 4, lines 7-10). Therefore, it would have been obvious to combine Brumbley with Driscoll to obtain the invention as specified in claim 4.

Referring to claim 15, see the rejection of at least claim 4 above.

6. Claims 6, 8, 13, 17, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Brumbley et al., U.S. Patent No. 5,982,913 ("Brumbley") and Uchida, J.P. Patent No. 2000-23004 ("Uchida").

Referring to claim 6, Brumbley further discloses that the image generating means generates a plurality of image data of the fingerprint (col. 5, lines 50-61), and the image identification means compares each of the plurality of image data generated by the image data generating means against the image data stored in the storage means to calculate scores each

indicating the degree of coincidence between the respective image data, thereby determining whether the fingerprints represented by the respective image data coincide with each other based on the scores (col. 6, lines 1-18 and col. 7, lines 34-56).

Brumbley does not explicitly disclose that the fingerprint sensor reads the fingerprint a plurality of times with the finger placed at different positions with respect to the fingerprint sensor to generate the plurality of image data. However, this feature would have been obvious in Brumbley for at least the following reasons. Brumbley explains that the fingerprint image is divided into segments (plurality of image data), each segment comprising a partial fingerprint image that represents a different portion on the finger. Note that the result of this process is equivalent to the result of reading the fingerprint a plurality of times with the finger placed at different positions with respect to the fingerprint sensor; both processes produce a plurality of image data that comprises partial fingerprint images representing different portions of the finger. Therefore, it would have been obvious to modify Brumbley so that the fingerprint is read a plurality of times with the finger placed at different positions with respect to the fingerprint sensor, since no new or unexpected results are seen to be attained by reading the fingerprint a plurality of times to produce the plurality of image data.

The Examiner further notes that the step of reading the fingerprint a plurality of times with the finger placed at different positions with respect to the fingerprint sensor to generate a plurality of image data of a fingerprint was exceedingly well known in the art. For example, Uchida discloses the step of generating a plurality of image data by reading a fingerprint a plurality of times with a finger placed at different positions with respect to a fingerprint sensor

(figure 4c-d). Note that the plurality of image data comprises partial images that represent a different portion of the finger.

Brumbley and Uchida are combinable because they are both concerned with generating a plurality of image data that comprises partial fingerprint images representing different portions of the finger. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the system of Brumbley so that the fingerprint is read a plurality of times with the finger placed at different positions with respect to the fingerprint sensor to generate the plurality of image data, as taught by Uchida. The suggestion/motivation for doing so would have been enhance the flexibility of the fingerprint identification system. Therefore, it would have been obvious to combine Brumbley with Uchida to obtain the invention as specified in claim 6.

Referring to claim 8, Brumbley further discloses that the image identification means determines coincidence based on individual comparisons of each of the scores with a predetermined threshold value (col. 7, lines 34-56).

Referring to claim 13, see the rejection of at least claim 6 above.

Referring to claim 17, see the rejection of at least claim 6 above.

Referring to claim 19, see the rejection of at least claim 8 above.

7. Claims 7, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Brumbley et al., U.S. Patent No. 5,982,913 ("Brumbley"), Uchida, J.P. Patent No. 2000-23004 ("Uchida"), and Bunn, U.S. Patent No. 4,641,350 ("Bunn").

Referring to claim 7, Brumbley and Uchida do not explicitly disclose that the image identification means determines coincidence based on a comparison of the total of the scores with a predetermined threshold value. However, this feature was exceedingly well known in the art. For example, Bunn discloses a fingerprint image identification means that determines coincidence based on a comparison of the total of scores with a predetermined threshold value, wherein each score indicates a degree of coincidence between a plurality of partial image data and stored reference image data (Bunn, col. 7, lines 4-20 and col. 8, lines 28-35).

Brumbley, Uchida, and Bunn are combinable because they are all concerned with fingerprint imaging systems. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the image identification means of Brumbley and Uchida so that it determines coincidence based on a comparison of the total of the scores with a predetermined threshold value, as taught by Bunn. The suggestion/motivation for doing so would have been enhance the accuracy of the fingerprint image identification process. Therefore, it would have been obvious to combine Brumbley and Uchida with Bunn to obtain the invention as specified in claim 7.

Referring to claim 18, see the rejection of at least claim 7 above.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Funahashi, EP 1239404 A2 discloses a similar fingerprint identification system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Kim whose telephone number is 703-306-4038. The examiner can normally be reached on Mon thru Thurs 8:30am to 6pm and alternating Fri 9:30am to 6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on 703-308-6604. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ck
January 6, 2005

Jon Chang
Primary Examiner